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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:
PATRICK MOIREAU, ET AL.	: EXAMINER: GRAY, J. M.
SERIAL NO: 10/588,720	:
FILED: JANUARY 10, 2007	: GROUP ART UNIT: 1798
FOR: ELECTRICALLY CONDUCTIVE GLASS YARN AND CONSTRUCTIONS INCLUDING SAME	:

APPEAL BRIEF

This is an appeal to the Board of Patent Appeals and Interferences under 35 U.S.C. § 134 from the September 19, 2011, Final Rejection of Claims 1, 2, 4-7 and 10-20 of Application 10/588,720, filed January 10, 2007. A Notice of Appeal was timely filed on January 18, 2012, with a request for a one month extension of time.

(I) REAL PARTY IN INTEREST

The real party in interest in this appeal is Saint-Gobain Technical Fabrics Europe of Chambery, France.

(II) RELATED APPEALS AND INTERFERENCES

Appellant/Applicant, Appellant/Applicant's legal representative, and assignee, are aware of no appeals, interferences, judicial proceedings, or cases that are related to, directly affect or would be directly affected by, or have a bearing on the decision of the Board of Patent Appeals and Interferences in this appeal.

(III) SUMMARY OF CLAIMED SUBJECT MATTER

1. Claimed Subject Matter

Independent Claim 1 is directed to a glass strand or glass strand structure coated with an electrically conducting coating composition which comprises, as % by weight of solid matter: **page 4, lines 12-15**

- 6 to 50% of a film-forming agent, wherein the film-forming agent is a polyvinylpyrrolidone, a poly(vinyl alcohol), a styrene polymer, a poly(vinyl chloride), a polyurethane or mixture thereof, **page 4, lines 15-17; page 5, lines 25-33**

- 5 to 40% of at least one compound chosen from plasticizing agents, surface-active agents and/or dispersing agents, **page 4, lines 18-22**

- 44 to 75% of electrically conducting particles wherein at least 15% of the particles have a flake or needle shape, **page 4, lines 21-22; page 8, lines 19-21; Example 7**

- 0 to 10% of a doping agent, **page 4, line 23**

- 0 to 10% of a thickening agent, and **page 4, line 24**

- 0 to 15% of additives. **page 4, line 25**

Independent Claim 9 is directed to an electrically conducting aqueous coating composition for a glass strand or glass strand structure, comprising: **page 4, lines 12-15**

- 6 to 50% of a film-forming agent, wherein the film-forming agent is a polyvinylpyrrolidone, a poly(vinyl alcohol), a styrene polymer, a poly(vinyl chloride), a polyurethane or mixture thereof, **page 4, lines 15-17; page 5, lines 25-33**

- 5 to 40% of at least one compound chosen from plasticizing agents, surface-active agents and/or dispersing agents, **page 4, lines 18-22**

- 44% to 75% of electrically conducting particles wherein at least 15% of the particles have a flake or needle shape, **page 4, lines 21-22; page 8, lines 19-21; Example 7**

- 0 to 10% of a doping agent, **page 4, line 23**

- 0 to 10% of a thickening agent, and **page 4, line 24**

- 0 to 15% of additives. **page 4, line 25**

2. Means or Step Plus Function Analysis Section

There are no claims with means or step plus function language on appeal.

(IV) ARGUMENT

1. The obviousness rejection combining U.S. patent no. 6,419,918 to Novich and U.S. patent no. 6,086,791 is erroneous on a number of grounds

Briefly, the Examiner cites to Novich to allegedly teach the claimed composition but not 44 to 75% of electrically conducting particles wherein at least 15% of the particles have a flake or needle shape as recited in Claim 1. Final Rejection, paragraph bridging pages 2-3. Therefore, the Examiner relies on Miller citing the entire document, and for example the Abstract to conclude that:

> It would have been obvious to one having ordinary skill in the art to modify the composition of Miller by including at least 15% by weight of electrically conducting particles such as carbon having a flake-like shape with the reasonable expectation of success of enhancing the conductivity.

Page 3 of the Final Rejection.

The rejection is erroneous for the following reason:

(A) The first reversible error in this rejection is that Novich does not teach including electrically conductive particles although Novich teaches throughout his disclosure that various embodiments of assemblies may have an electrically conductive layer. See, e.g., col. 49, line 14-18. In fact, when referencing particles, Novich teaches that the particles should be insulative or thermally conductive. The Examiner reads teachings into Novich that are not there. See *In re Warner,* 379 F.2d 1011, 1016-17 (CCPA 1967) (the examiner

has the initial duty of supplying the requisite factual basis and may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions, or hindsight reconstruction to supply deficiencies in the factual basis).

Specifically, in rendering the rejection, the Examiner finds "that Novice discloses his composition contains electrically conductive particles such as graphite or boron nitride wherein said particles can be lamellar in structure (note column 11, lines 7-35). However, no such disclosure is present in the cited portion for electrically conductive particles. In fact, Novich teaches that inorganic particles are to be electrically insulative not conductive. See, for example, Claim 28. Novich does teach conductivity in regards to particles but that conductivity is **thermal** conductivity (see, for example, Claim 27). In addition, Novich mentions graphite and boron nitride, amongst an inordinate number of possibilities for such particles, which in of itself provides no basis to select these particle materials and modify them according to Miller's teachings. *See*, *Rolls-Royce PLC v. United Technologies Corp.*, 95 USPQ2d 1097 (Fed. Cir. 2010):

> ***To determine that an invention would have been obvious*** to try on the basis of the record before the time of invention, ***this court has clarified***, with respect to inventions requiring selection of a species from a disclosed genus, ***that the possible approaches and selection to solve the problem must be*** "known and ***finite.***" *See Abbott*, 544 F.3d at 1351 (holding as conditions in which "obvious to try" may negate patentability, "the problem is known, the possible

> approaches to solving the problem are known and finite, and the solution is predictable through use of a known option"). . . . In this case, the broad selection of choices for further investigation available to a person of ordinary skill included any degree of sweep. *See Takeda*, 492 F.3d at 1359 (holding the invention not obvious to try because the prior art disclosed a broad selection of compounds that an ordinarily skilled artisan could have selected for further investigation). Rolls-Royce, at 1107, emphasis added.

Even presuming that one would select such particles, one of ordinary skill would not be motivated to select particles that are electrically conductive when Novich tells one of skill to select those that are electrically insulative. In fact, as any one, whether skilled or unskilled, would appreciate, conductivity and insulative are very different and one following the teachings of choosing particles that are electrically insulative would lead one away from choosing particles that are electrically conductive. See *In re Kahn* 441 F.3d 977, 985-86 (Fed. Cir. 2006): "A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant."

Therefore, whether Miller teaches electrically conductive particles germane to the present invention as alleged by the Examiner is irrelevant because one of ordinary skill would not have looked to electrically conductive materials to modify electrically insulative particles.

(B) The second reversible error in the rejection is combining the references as Novich's teaching relate to glass fibers whereas Miller describes a paint (col. 2, line 66) to be applied on various substrates, for example floors, walls, ceilings, roof, gutter, outdoor structures, home/commercial appliances (col. 3, lines 1-21). Miller does not provide any salient teachings as to coatings on glass strands or glass strand structures according to present Claim 1 nor Novich's glass fibers (set aside the fact that Novich is teaching insulation rather than conduction rendering particles for the sake of this argument). Thus, reliance on Miller is improper and based on hindsight because Miller has nothing to do with electrically conducting coating compositions on glass strands. See *In re Klein*, 647 F.3d 1343 (Fed. Cir. 2011) "A reference qualifies as prior art for an obviousness determination under § 103 only when it is analogous to the claimed invention. Innovention Toys, LLC, v. MGA Entertainment, Inc., No. 2010-1290, slip op. at 12 (Fed. Cir. Mar. 21, 2011); In re Bigio, 381 F.3d 1320, 1325 (Fed. Cir. 2004); In re Clay, 966 F.2d 656, 658 (Fed. Cir. 1992). "Two separate tests define the scope of analogous prior art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved." Bigio, at 1325.

In Miller's examples, the paint is applied on a glass pan or dish, or a metal pan. Furthermore, Miller's paint includes a large quantity of solvent (xylene) contrary to the electrically conducting coating composition according to Claim 9 which is aqueous. Therefore, Applicants find no basis to argue that one in the field of electrically conducting coating compositions on glass strands would look to Miller for any guidance whatsoever and as such the underlying presumption of the rejection is flawed.

(C) The third reversible error is that even presuming that the general disclosures that could have been applied to the claimed invention were known and within the level of skilled in the art (based on the combination of Novich and Miller) the claims should be considered non-obvious because the problem which suggested the preparation of a new glass strand coated with an electrically conducting coating composition had been unknown, from the teachings of the cited art. See the Examination Guidelines Update: Developments in the Obviousness Inquiry After KSR v. Teleflex (20Aug2010) 1358 OG 372 28SEP2010 75 Fed. Reg. 53643 01SEP2010 and Example 4.1. *In re Omeprazole Patent Litigation*, 536 F.3d 1361 (Fed.Cir. 2008).

The problem Novich et al. intend to solve is to improve the "wet-through" and the "wet-out" properties (col. 2, lines 19-24). The proposed solution is to coat the fiber strand with a coating comprising a plurality of

particles 18 that adhere to the outer surface of the fibers and provide interstitial spaces. The particles are preferably "discrete" particles that do not tend to coalesce or combine to form continuous films under conventional processing conditions (col. 8, lines 24-36). The coating on fiber strands facilitate thermal conduction along coated surface of the glass fibers which is desired when the said fibers are used to produce electronic circuit board (col. 4, lines 44-53). Thus, there would have been no motivation to replace such particles with particles wherein at least 15% of the particles have a flake or needle shape as recited in Claim 1 from Miller, even assuming that Miller provided salient teachings to the claimed invention.

In contrast, as discussed in the present specification on page 3, lines 10-32, there are a number of considerations that must be addressed with glass fibers that are provided with electrical conductivity. The improvement in the electrical conductivity must not be made at the expense of the other properties. As regards the composite materials, it must in particular be kept in mind that the strands are above all intended to reinforce matrices and consequently they must exhibit all the qualities for this.

In particular, the conducting coating must:

- provide bonding of the filaments to one another and also bond the strands so as to obtain acceptable or improved mechanical properties when composite materials are concerned,

- protect the glass strands from the mechanical assaults which occur when the reinforcing structures are employed on building sites,

- protect the glass strands from chemical corrosion and from assaults related to the environment, so as to provide satisfactory durability, and

- provide good bonding with the polymer matrix to be reinforced, that is to say render the strands and the matrix compatible.

The cited references are silent about these important criteria and do not provide salient teachings to address these issues while trying to increase the electrically conductivity of a coating on glass fibers.

For the reasons set forth above, the obviousness rejection cannot be sustained.

Respectfully submitted,

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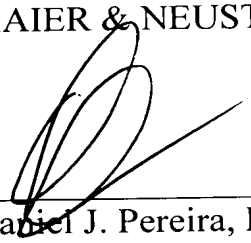
MAIER & NEUSTADT, L.L.P.



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(V) CLAIMS APPENDIX

Claim 1 (Rejected): A glass strand or glass strand structure coated with an electrically conducting coating composition which comprises, as % by weight of solid matter:

- 6 to 50% of a film-forming agent, wherein the film-forming agent is a polyvinylpyrrolidone, a poly(vinyl alcohol), a styrene polymer, a poly(vinyl chloride), a polyurethane or mixture thereof,

- 5 to 40% of at least one compound chosen from plasticizing agents, surface-active agents and/or dispersing agents,

- 44 to 75% of electrically conducting particles wherein at least 15% of the particles have a flake or needle shape,

- 0 to 10% of a doping agent,

- 0 to 10% of a thickening agent, and

- 0 to 15% of additives.

Claim 2 (Rejected): The strand or structure according to Claim 1, wherein the film-forming agent is a polymer.

Claim 3 (Cancelled)

Claim 4 (Rejected): The strand or structure according to Claim 1, wherein the plasticizing, surface-active and/or dispersing agent is chosen from optionally halogenated, aliphatic or aromatic, polyalkoxylated compounds, from polyalkoxylated fatty acid esters, from amino compounds, from silica derivatives and from the blends of these compounds.

Claim 5 (Rejected): The strand or structure according to Claim 1 wherein the conducting particles are based on carbon.

Claim 6 (Rejected): The strand or structure according to Claim 5, characterized in that the size of the particles does not exceed 250 μm.

Claim 7 (Rejected): The strand or structure according to Claim 6, wherein 30 to 60% of the particles have an aspect ratio which varies from 5 to 20.

Claim 8 (Cancelled).

Claim 9 (Rejected): An electrically conducting aqueous coating composition for a glass strand or glass strand structure, comprising:

- 6 to 50% of a film-forming agent, wherein the film-forming agent is a polyvinylpyrrolidone, a poly(vinyl alcohol), a styrene polymer, a poly(vinyl chloride), a polyurethane or mixture thereof,

- 5 to 40% of at least one compound chosen from plasticizing agents, surface-active agents and/or dispersing agents,

- 44% to 75% of electrically conducting particles wherein at least 15% of the particles have a flake or needle shape,

- 0 to 10% of a doping agent,

- 0 to 10% of a thickening agent, and

- 0 to 15% of additives.

Claim 10 (Rejected): The composition according to Claim 9, which exhibits a viscosity of greater than or equal to 190 mPa·s.

Claim 11 (Rejected): The composition according to Claim 10, which comprises:

- 2.5 to 45% of graphite particles having a size of between 10 and 100 μm, at least 5% by weight of these particles being provided in the form of flakes or needles with an aspect ratio of greater than or equal to 5,

- 0 to 45%, of graphite particles with a size of less than 10 μm, and

- 2.5 to 45%, of carbon black particles having a size of less than 1 μm.

Claim 12 (Rejected): A process for the preparation of a glass strand or of a glass strand structure according to Claim 1 which comprises

- coating a glass strand or a glass strand structure with the conducting coating composition according to Claim 9, and

- heating the said coated strand or the said coated structure at a temperature sufficient to remove water and to strengthen the conducting coating.

Claim 13 (Rejected): The process according to Claim 12, wherein the coating is carried out by immersion in a bath of the conducting coating composition.

Claim 14 (Rejected): The process according to Claim 12, wherein the heating is carried out at a temperature of greater than approximately 105°C and less than approximately 220°C.

Claim 15 (Rejected): The glass strand structure according to Claim 1, which is provided in the form of an assemblage of intertwined strands or nonintertwined strands.

Claim 16 (Rejected): The structure according to Claim 15, which exhibits an electromagnetic shielding value of between 5 and 50 dB measured between 100 MHz and 2.7 GHz.

Claim 17 (Rejected): A composition material comprising a matrix reinforced by glass strands or a glass strand structure according to Claim 1.

Claim 18 (Rejected): The composition material according to Claim 17, wherein the matrix is a thermoplastic or thermosetting polymer or a cementing material.

Claim 19 (Rejected): The strand or structure according to Claim 1, which comprises from 50 to 75% of the electrically conducting particles.

Claim 20 (Rejected): The composition according to Claim 9, which comprises from 50 to 75% of the electrically conducting particles.